Claims

[c1]   What is claimed is:

1.A method for calculating attributes of vertexes of a three-dimensional pattern having a plurality of triangular primitives with a vertex shader, each of the triangular primitives having three vertexes, each of the vertexes comprising a plurality of attributes, and the method comprising:

calculating a triangular transform and related position attributes corresponding to a triangular primitive with a transform program consisting of a couple of instructions among a plurality of instructions of the vertex shader; determining whether the triangular transform is visible according to the position attributes of the triangular transform; and

calculating remaining attributes of the triangular trans-form if the triangular transform is visible or not calculat-ing the remaining attributes of the triangular transform and culling the triangular transform if the triangular transform is invisible.

[c2]   2.The method of claim 1, wherein whether the triangular transform is visible is determined by determining

whether a discriminant

$$\begin{bmatrix} x_1 - x_0 & x_2 - x_0 \\ y_1 - y_0 & y_2 - y_0 \end{bmatrix}$$

is positive, x_0, x_1 and x_2 being x-coordinates of the position attributes of the three vertexes of the triangular transform respectively, and y_0, y_1 and y_2 being y-coordinates of the position attributes of the three vertexes of the triangular transform respectively.

[c3]   3. The method of claim 1, wherein whether the triangular transform is visible is determined by determining whether a normal vector of the triangular transform is pointing outward.

[c4]   4. The method of claim 1, wherein the remaining attributes of the triangular transform are calculated with a lighting program.

[c5]   5. The method of claim 4, wherein the triangular transform has three vertexes, each of the three vertexes comprising at least a color attribute, and the light program is used for calculating the color attributes.

[c6]   6. The method of claim 5, wherein each of the vertexes

comprises four color attributes.

[c7]   7.The method of claim 6, wherein the four color at-
tributes are red, green, blue, and alpha attributes re-
spectively.

[c8]   8.The method of claim 4, wherein the triangular trans-
form has three vertexes, each of the vertexes comprising
four texture attributes, and the lighting program is used
for calculating the texture attributes.

[c9]   9.The method of claim 1, wherein each of the vertexes
comprises 16 attributes.

[c10]   10.The method of claim 1, wherein each of the attributes
of the vertexes has a data capacity of 4x32 bits.